

### **REMARKS**

Applicant has carefully reviewed and considered the Office Action mailed on August 8, 2003, and the references cited therewith.

Claims 4, 13, 18, and 24 are amended, no claims are canceled, and no claims are added; as a result, claims 4, 6-13, 18, 19, 21-24, and 26-31 remain pending in this application.

#### **Oath/Declaration**

The Office Action stated in paragraph 7 that the Oath/Declaration is defective. A corrected Oath/Declaration will be submitted in a supplementary response.

#### **Submission of Formal Drawings**

Six sheets of formal drawings (Figs. 1-6) are submitted herewith. No amendments have been made to the drawings. It is believed that these drawings are in compliance with 37 C.F.R. 1.84.

#### **§102 Rejection of the Claims**

Claims 4, 6-9, 11-13, 18, 19, 21-24, 26-28, 30 and 31 were rejected under 35 USC § 102(b) as being anticipated by Woolley et al. (Chemistry and Biology, vol. 7, pp. R193-R204 (2000)).

The rejection under 35 USC § 102(b) states that Woolley includes, “measuring the friction characteristics of the substrate to detect the carbon nanotube (The measurement of friction characteristics of the of the COOH/CH<sub>3</sub> substrate with a COOH tip indicated increased friction in the COOH area and decreased friction in the CH<sub>3</sub> patterned area (Figure 9)).”

Woolley apparently relates to AFM cantilevers with nanotube tips where the nanotube tips terminate in a COOH molecule (Figure 8a). However, Woolley does not show, teach or suggest measuring friction characteristics of the substrate and the carbon nanotube **using a separate friction measuring device** to detect the carbon nanotube. The carbon nanotube itself in Woolley is the friction measuring device.

In contrast, claim 4 as amended, includes measuring friction characteristics of the substrate and the carbon nanotube using a separate friction measuring device to detect the carbon nanotube.

The claim interpretation section states that, "since any chemical modification changes friction coefficient of a nanotube, the steps of modifying a frictional coefficient of a nanotube and attaching the nanotube to a reactive molecule are interpreted as being the same step." The rejection under 35 USC § 102(b) further states that "the reactive molecule and the chemical modifier are considered to be the same molecule."

Woolley apparently relates to AFM cantilevers with nanotube tips where the nanotube tips terminate in a single molecule (COOH molecule). However, Woolley does not show, teach or suggest a chemical modifier attached to a portion of the carbon nanotube **separate from the reactive molecule**, the chemical modifier altering the friction coefficient of the carbon nanotube. Woolley also does not show, teach or suggest modifying a friction coefficient of **side surfaces** of a carbon nanotube.

In contrast, claim 18 as amended, includes a chemical modifier attached to a portion of the carbon nanotube separate from the reactive molecule, the chemical modifier altering the friction coefficient of the carbon nanotube. Further in contrast, claim 24 as amended, includes modifying a friction coefficient of side surfaces a carbon nanotube.

Because the Woolley reference does not show every element of Applicant's independent claims, a 35 USC § 102(b) rejection is not supported. Reconsideration and withdrawal of the rejection is respectfully requested with respect to Applicant's independent claims 4, 18, and 24. Additionally, reconsideration and withdrawal of the rejection is respectfully requested with respect to the remaining claims that depend therefrom as depending on allowable base claims.

### §103 Rejection of the Claims

Claims 10 and 29 were rejected under 35 USC § 103(a) as being unpatentable over Woolley et al. in view of Fisher et al. (U.S. 6,203,814). Applicant respectfully submits that the Office Action fails to make a prima facie case of obviousness since it points to nothing in the additional patents to Fisher which cure the deficiencies of Woolley as outlined above.

Serial Number: 10/067029

Dkt: 884.594US1 (INTEL)

Filing Date: February 4, 2002

Title: CHEMICALLY MODIFIED CARBON NANOTUBES AS MOLECULAR LABELS, WITH APPLICATION TO DNA SEQUENCING

Assignee: Intel Corporation

Because the cited references, either alone or in combination, do not show every element of Applicant's independent claims, a 35 USC § 103(a) rejection is not supported by the references. Reconsideration and withdrawal of the rejection is respectfully requested with respect to Applicant's claims 10 and 29.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney ((612) 373-6944) to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743

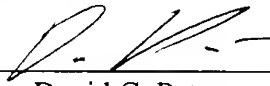
Respectfully submitted,

NARAYAN SUNDARARAJAN ET AL.

By their Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.  
P.O. Box 2938  
Minneapolis, Minnesota 55402  
(612) 373-6944


Date 10-8-03

By   
David C. Peterson  
Reg. No. 47,857

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: MS Non-Fee Amendment, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 8th day of October, 2003.

Anne M. Richards

Name

  
Signature